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# Examining Space Perceptions. Combining Visual and Verbal Data with Reactive and Non-Reactive Methods in Studies of the Elderly and Library Users

*Eva-Christina Edinger*[*]

**Abstract:** »*Empirische Zugänge zur Raumwahrnehmung – Kombination von visuellen und verbalen Daten und reaktiven und nichtreaktiven Methoden in Studien zu Seniorenresidenzen und Bibliotheken*«. Space is characterised by both its material and its social aspects. To examine space perceptions in this holistic understanding it is crucial to combine verbal with visual data and reactive with non-reactive methods, because not every perception is verbally expressible. The article starts illustrating a socio-spatial-material concept of space. Based on this it will be displayed how a triangulative research design with visual interview stimuli, participant observation, mental maps, photo documentation, and architectural analysis can enable to get new insights into spatial perceptions. This will be shown by outlining two specific research projects, the first focuses on the space experience and imaginations of elderly people, the second on space perceptions of library users. The projects with their approaches and results clarify the impact of the triangulation of visual data and non-reactive methods in the exploration of spatial perception. Furthermore, the contribution of every kind of method will be shown in the discussion of the results and unexpected findings. Finally, the article reveals in a broader context that it is important to combine text-based and visual methods, not only for the collection of data but for the presentation of research results as well.

**Keywords:** Space, architecture, methods, interview, triangulation, library, elderly.

## 1. Introduction

The perception of space – whether it is indoors or outdoors – is multi-sensual: by visiting a garden, for instance, we walk across different kinds of surface; we feel pebbles and grass beneath our feet. We smell the scent of roses and the resin of pines. We hear the burbling of water in a fountain and see lots of colours and forms. We see, hear and feel the people who are with us in the garden as well. Sometimes these perceptions are linked with memories: the sight of

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daffodils may remind us of Easter, the aroma of cut grass of summer holidays when we were children.

In spatial sociology we are faced with particular challenges to cover this multi sensuality. However, sociology is usually justified verbally and numerically and therefore finds difficulties with the visual justification of material spaces – the architecture – and its reference to the body (Delitz 2010, 210). The interview is one, if not the most traditional method in sociology, but not everything can be expressed verbally, like Hans-Georg Soeffner (2000, 185) accentuates. The text-based and reactive method of traditional interviews may fail, when interviewees struggle with verbal expression. Furthermore, it is not that easy to speak about space, as Martina Löw pointed out in her presentation "Über den Einfluss des Sprechens auf die Konstitution von Räumen" on the Congress of the German Sociological Society (October 14, 2010, Frankfurt a. M.). This difficulty may increase due to a declining ability to speak caused by dementia or because of confusion created by the different types of spaces an interviewee has to speak about. Sometimes the social background hinders an interviewee from articulating his/her perceptions in detail. Jean-Claude Kaufmann (2004, 218) emphasises that the language area is smaller or larger according to the social milieu (environment).

In the following section I will illustrate how a triangulative research design with participant observation, mental maps, photo documentation, and architectural analysis as well as interviews with visual stimuli may enable us to get new insights into *spatial experience*. This will be shown by outlining two specific research projects. The first project focuses on the space experience and space imagination of elderly people,[1] the second one on space perceptions of library users.[2]

## 2. Space: A Socio-Spatial-Material Concept

With the spatial turn the understanding of space as socially constructed became familiar. The theoretical basis of my work is given by a *relational understanding of space*, but this is not only the "result of relations of bodies" (Fritsche, Lingg and Reutlinger 2010, 13; in original: "Ergebnis von Beziehungen zwischen Körpern"). The understanding of space in its duality as result of and a condition for social processes is decisive for the relational concept of space. Space is produced by social practice and at the same time it structures social activities. This relational model of space becomes more and more established. In this context, the conception of space of Martina Löw (2001) persuades, because it

[1] For results of this project see Edinger and Conrad (2014).

[2] This was part of my PhD thesis, submitted in November 2013 at the University of Constance, Germany.

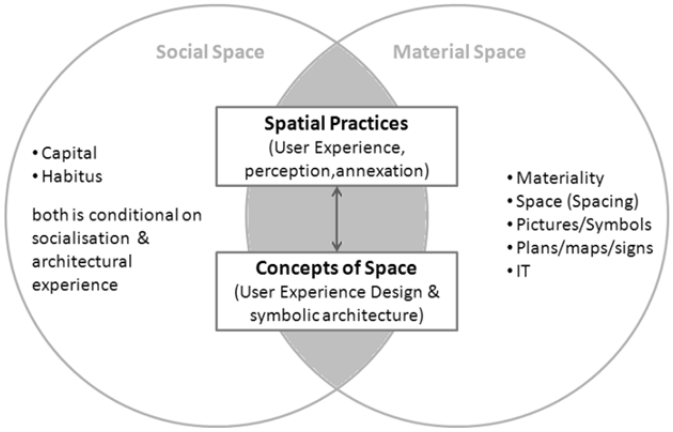
encapsulates both material as well as social components and these components constitute each other. Löw defines space as a relational arrangement of human beings, animals and social goods. Two processes are constitutive for space: "spacing" and "synthesis". Spacing designates the placing and arrangement of social goods and human beings (Löw 2001, 158). Spacing includes a holistic meaning of human beings, animals, movable and immovable goods. In the case of human beings and animals "spacing" refers to both the positioning and the movement from one position to another. "Synthesis" stands for the processes of perception, imagination and memory that summarises and combines goods and human beings to spaces (Löw 2001, 159).

It is important to understand spaces as being characterised by both its material and its social aspects. Hence the theoretical concept of my studies is based on a relational understanding of space[3], which likewise includes material and social factors and brings therefore the triad socio-spatio-material into the focus of the theoretical discussion (to this kind of triad see as well Frers 2007). Consequently, I proceed from two primary components of space: the social space and the material space. Due to the concept of "social spaces" of Pierre Bourdieu (2007), a socio-demographic description is easy to realise: the social space can be investigated by "capital", "habitus" and the position of people in "social fields". The material space can be characterised by analysing the materiality in form of materials like wood, steal, glass and their dimension, and by the 'free' space between these materials – this can be found in the mentioned term "spacing" (Löw 2009). Architectural artefacts, such as maps, signs and symbols and technologies, such as the IT-infrastructure are also parts of the material space.

Space in a relational meaning always exists in the intersection of social and material space. This is pointed out by the grey part in figure 1. This is space in its totality. Here the *Spatial Practices* and the *Concepts of Space* are created. *Spatial Practices* means to include the following: perception and appropriation of space, to fill space with life, to make use of it and to put effort in designing it. *Spatial Concepts* focus on the shaped design of space and the conception of potential ways of using it. The Practices and the Concepts are owed to Lefebvres triad of space (Lefebvre 2007). In conclusion, there are four components to be investigated: *Social Space*, *Material Space*, *Practices* and *Concepts*. For me it is of major importance to clarify the individual parts in such a way that they can be used for empirical work. Each of these components cannot build space on its own. Space is characterised by the mutual saturation of these categories. They have just been separated to generate unambiguous categories that are practically useful for empirical investigation.

[3] To the concept of relational space see Löw (2001), Löw, Steets and Stoetzer (2007), Schroer, M. (2007).

**Figure 1**: Concept of Space




Source: Own Diagram.

Hence a relational concept of space is generated, which incorporates the material as well as the social environment, and which makes positions in space describable. At the same time it includes the process of constitution of space in the perception of human beings.

The empirical investigation of several space components requires several methodical approaches. Photographs, figure-ground diagrams and floor plans can for example help to study the component of the material space. If the perception of space lies at the centre of interest – as in this article – it is essential to understand how the material space is built, how it is characterised by social structures and how these both aspects are perceived by the people. An approach to this world of experience and perception provides the interview in turn. Thus it is important to triangulate verbal with visual data.

## 3. The Empirical Examples

### 3.1 Space Imaginations and Experiences in Homes for the Elderly

The first project focuses on the socio-spatio-material analysis of a home for the elderly in Constance, Germany (conducted in 2011).[4] Here interviews with the inhabitants permit getting access to their experience and imaginations. Some of the interviewees showed signs of restricted cognitive and physical skills. In this

[4] More information concerning this project: <http://spacesofknowledge.com/lehre/fuer-gesellschaft-bauen> (accessed September 5, 2013).

context the challenge has been twofold. Firstly, there is the general problem, as mentioned above, to reflect and talk about space. Secondly, these people are sometimes not able to remember special material parts of the surroundings. Memory is not only cognitive, but also incorporated as for instance remembering how to use a bicycle (see as an overview: Fuchs 2008). Memories are not only verbal, but connected to feelings, sounds and movements. These memories of the body can be accessible (Baer and Schotte 2009). Therefore, the triangulation of reactive and non-reactive methods as well as the *use of visual stimuli in semi-structured interviews* is even more important than usual (Flick 2009, especially 311-4). In the following paragraphs it will be pointed out, how *photographs*, as stimuli, can support such kind of interviews. Furthermore, the role of non-reactive methods in this setting will be discussed.

### 3.2 Space Perceptions of University Libraries

In the second project spaces of university libraries were examined (in the years 2007-2013). One of the research questions has been to what extend library architecture can work as a medium of orientation or if it is more like a labyrinth and hinders users in their navigation through the library building, even through reading rooms and shelves. Amongst others, the method of *mental maps* was used for both freshmen and experienced users. By analysing these maps it was possible to uncover and illustrate patterns of disorientation in subjective spatial perceptions (Kitchin 1994; Damir-Geilsdorf and Hendrich 2005). It had been this disorientation that made it difficult for some people to describe in interviews, used as well, the material structures of the libraries verbally. Beyond that, *participant observations* brought another insight in the functionality of libraries and helped to explain why library users sometimes have the feeling of confusion combined with uncertainty and being lost. It was quite surprising that even PhD students and fellows mentioned, that they avoid going into the library because of the named feeling of getting lost. The triangulative research design used was essential to understand the special case of library buildings which Christopher Alexander et al. explain in general: ”In many modern building complexes the problem of disorientation is acute. People have no idea where they are, and they experience considerable mental stress.” (Alexander, Ishikawa and Silverstein 1977, 481).

## 4. Research Designs, Chosen Methods, and Corpus of Collected Data

Both projects follow a circular research design. Based on the above introduced concept of space the reactive and non-reactive methods were chosen and adjusted. They had to be matched with the respective component of space, and

additionally they had to be adequate to the object of research, feasible in their implementation, and promising in terms of results. Research tools were designed, data collected and evaluated, and – depending on the results – tools again adjusted and further data collected and so on.

The empirical qualitative methods I have chosen to investigate in the above named spaces include in both cases target group analysis and statistics to learn more concerning the *Social Space*. To investigate the *Material Space* visual data were evaluated in both projects, specifically floor plans, maps, aerial views and photos. Photo documentations were done to retrace the "spacing" (Löw 2001, 158) of the buildings and the interior design. The participant observation marks the intersection of reactive and non-reactive methods and of visual and verbal data. This method was in most cases the first to be used in the field.

Moreover, expert interviews provided lots of information, not only concerning the material space, but also in the context of the *Concepts of Space*. These interviews facilitated an understanding of the concepts, such as purposes, functionality, and strategy. Gained experience shows that the space perception respectively the *Spatial Practices* can be examined via semi-structured interviews with users, mental maps and participant observation. The aim is to reconstruct shared "spaces of experience" ("Erfahrungsräume", Hollstein and Ullrich 2003, 37) and experience of space and to make patterns of interpretive paradigms visible. The selection of methods of data collection and evaluation is directed at this aim. Thus beside the triangulation of methods and data a triangulation of perspectives has been realised. Triangulation of perspectives in this relation refers to the triangulation of the perspective of both the users of the library and the experts. It is here not understood as the triangulation of several research perspectives like presented by Flick (2009, 315f).[5] Therefore, a holistic examination of the object of research should be aimed at which is characterised by minor reduction of complexity (Hollstein and Ullrich 2003, 34, table 1). In the following part of this article I will focus on the components of material spaces and space perception, even if this comes with a reduced description of the research object.

The following material was collected in the project concerning homes for elderly, which was conducted in 2011: Two commented walks and two expert interviews with the manager of the house, five interviews with residents, supplemented with short surveys to evaluate the socio-demography, and further participant observations and photographs.

The project concerning library spaces was carried out in the years 2007-2013. Nine expert interviews and 13 user interviews were made, 33 mental maps were painted, two group discussions and a huge number of participant observations were conducted, and lots of photos, floor plans and further material collected.

[5] For different kinds of triangulation see Flick 2007, 519f.; Flick 1992, 11-55.

## 5. Methodological Discussion and Reflection

It is not possible to gather the named four components of space separately. A method, such as the participant observation examines more than one single component, e.g. the perception of space. It is possible and necessary to examine several components at once to include the context into the observations. Consequently, a single method explores the interplay of several components and several methods are needed to examine one single component holistically. In the following paragraphs I will give some insight into each method and its specific application in the named projects.

### 5.1 Participant Observation

Participant observation can be seen as one of the classical methods of space investigation (Lüders 2009, 385). It is a combination of reactive and non-reactive methods and of visual and verbal data. In most cases the participant observation (non-standardised) was the first method to *get acquainted with the field*, independent of being it a university library or a special part of the homes for the Elderly. On different days of the week, at different times of the day, first observations were conducted. The interest during these observations was focused on: a) the access to the investigated spaces, b) the orientation and navigation within these spaces, and c) what the people do and how they do what they do. With increasing knowledge of the spaces non-standardised observations can be transferred into standardised (Hauser-Schäublin 2008, 49). The latter ones can be used to focus on special details, like for instance the crossing of thresholds or in the case of libraries, places of silence and places of loudness. The observations were recorded, sequenced and evaluated by content analysis.

### 5.2 Photo Documentation

Another approach to the examination of the perception of space is the self-reflective photo documentation. With this method the researcher overtakes the perspective of, for example a library user and documents the impressions and perceptions by photos. The relevance of this approach to the field of research and the own world of expericence ("eigene Erfahrungswelt") of the researcher discusses Lars Frers (2007, 20). It is important to realise that *a photograph is always an instant picture of the given moment* (Harper 2009, 403) and also a first step of interpretation: the choice of detail, the camera angle plus the zoom factor are a first level of interpretation (Harper 2009; Flick 2007, 309f). Referring to the evaluation this means that a hermeneutic analysis of these pictures is not reasonable. However, the pictures can be evaluated by means of content

analysis. Therefore, the content shown has to be described, compared and systemised. [6]

**Figure 2:** Directory to the University Library Zurich, Switzerland (photograph by Thomas Edinger)


Figure 2 shows a directory of the University Library Zurich – even in times of GPS and Google Maps this is an important navigation aid. The photo was taken during a documentation of the route from the tram station to the library building. The confusion is obvious: the direction to the library is not evident at first glance. You have to look twice to find out that there is not just one main library of the university ("Hauptbibliothek Universität Zürich") but there are two different parts to it. It is written in the 'fine print'.

## 5.3 Semi-Structured Interviews with the Elderly and Library Users

As mentioned above there is a challenge to talk about spaces. In interviews with library users and inhabitants of homes for the Elderly a first approach to their space perceptions was realised via the question of their favourite places. This question has proved a valuable tool in the two projects discussed here and in further projects as well. Through this question it was moreover possible to come closer to the *space related process of identity construction* (Cain, Huss, Raggenbass-Malloth, Schlieben and Zambrano 2011: section "Places und Lieblingsorte"). I will come back to this later. In the case of the library spaces the question concerning *favourite places* included mental maps in the meaning of *"doing illustration"* (Berndt and Stegmaier 2010, 24f). The interviewees

[6] Flick writes on this in 2007, that there is a lack of evaluation methods for photographs in empirical social sciences and until now the loop way via transcription is made. Flick 2007, 311.

were pleased to draw a map of the library and in this map they had to draw their favourite place with all its special features and characteristics. The question concerning the favourite place was accompanied by questions about the specifics of the place. The interviewee had to give the reason why he or she has chosen this place, and what did it make so special to him or her. These questions facilitated the approach to experience of the interviewees with regard to the space. In addition, the interviewees were asked what an *ideal place* should look like. In the frame of the library study I asked them what the ideal library would be like. The answers permit inferences with individual patterns of assessment, requirements and priorities.

As already mentioned, in the case of the Elderly the interviews were supported by photographs as visual stimuli instead of mental maps. The questions about imagination and wishes were accompanied by a set of photographs, which show indoor and outdoor design of other homes for Elderly (cf. figures 3 and 4). The interviewees were pleased to have a close look at these photos and to choose those pictures, which fit best to their imagination.

The interviews have been conducted in the preferred language of the interviewees (English or German) and transcribed and afterwards analysed in this very language to avoid translation distortion. The interviews were evaluated via sequential analysis.

## 5.4 Mental Maps

Mental maps, also known as cognitive maps, are drawings of (urban) areas or indoor spaces, which are painted by people directly from their memory without any model. The term "mental map" was established by Peter Gould and Rodney White (1974).[7] The use of mental maps in social sciences can be traced back to the architect and urban planner Kevin Lynch, who examined the perception of urban spaces at the Massachusetts Institute of Technology (MIT) in the 1950s. In the context of his empirical work Lynch showed that human beings visually memorise their spatial environment in form of cognitive maps. These maps can be retrieved and can help in orienting and navigating in space (Lynch 1965).[8] When examining space mental maps can be used to *visualise patterns of the subjective space perception*. Essential for this is that mental maps are always subjective, selective, situative, context dependent, biased and never exhaustive (Kitchin 1994, 3; Damir-Geilsdorf and Hendrich 2005, 9). The situative and selective character makes them valuable for the sociology of space: with the help of mental maps it is possible to find out more about interpersonal patterns and space structures which can easily be memorised and told.

[7] A historical overview over the development of mental maps and their scientific discussion can be found in Langenohl 2005, 51-69.

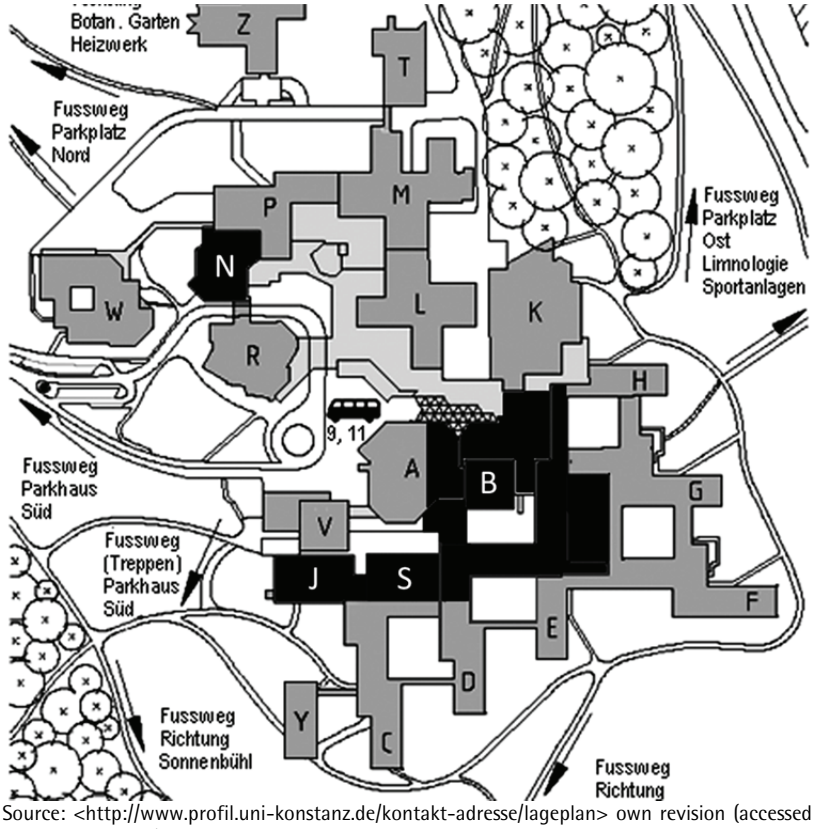
[8] For the definition of "Cognitive Maps" see as well the overview in Kitchin 1994, 1-19.

Furthermore, some memorised spaces are marked as special. Moreover, mental maps can include information concerning the social space, such as emotions, meanings and values, relations to other people and so on (Kitchin 1994, 2).

Two derivates of this method have been used in the study concerning libraries: firstly, in the semi-structured interviews conducted with library users – researchers as well as students and freshmen – mental maps were used in the sense of "making illustrations" (Berndt and Stegmaier 2010, 24f). The interviewees had to visualise in such a map the library spaces they talked about. Secondly, a group of first-time users and a group of experienced students were asked to draw maps of the library. Their task was to draw all rooms and details they remembered as well as the way they took on their journey through the library.

## 5.5 Architectural Analysis: Floor Plans, Aerial Views, Maps

**Figure 3:** Map of the University of Constance, Germany




Source: <http://www.profil.uni-konstanz.de/kontakt-adresse/lageplan> own revision (accessed December 2, 2013).

Contexts are essential for the analysis of material space, thus researchers have to account for the groups of buildings in which the investigated spaces are embedded. This comes to the fore especially when analysing the access to a building or the orientation and navigation in a building complex. In this respect floor plans, aerial views and maps are convenient data. The spacing of a library within the group of buildings of a university can be a source of information concerning the "site effects" (Bourdieu 1997). There is not only another access to the library but also another meaning depending on its spacing in the middle of a building complex or as a freestanding building.

Figure 3 shows a map of the University of Constance with its library in black. Here you can see that the library is not a detached building but rather embedded into the whole building complex. It connects different buildings and it has the shape of a circle. This shape can be challenging for the users.

It has to be taken into account that these architectural data are – like all documents – produced by an author for a specific audience and with a specific aim. Maps for instance are instruments of power, they function to measure and distribute territories (Sen 2008). They are never objective and they give different information content depending on their function.

## 6. Results and Unexpected Findings

In the following the results and unexpected findings of both projects will first be presented separately. After this, the results of both projects will be brought together and the methods and results will be discussed from an additional perspective.

### 6.1 Inner and Outer Safety and Clearly Marked Thresholds of Privacy in Homes for Elderly

At the beginning of the project I supposed that accessibility, the creation of areas of activity and the facilitation of communication processes could be the main parts of the study. But it soon became clear that the inhabitants of the homes for elderly had heterogenic requirements and imaginations of their habitation. "That seniority is about 'frailness, confusion, helplessness' [...] is absolutely implausible by talking about people at the age between 50 and 70." (Saake 2006, 16, in original: "Dass es im Alter um ‚Gebrechlichkeit, Verwirrung, Hilflosigkeit' […] geht, ist völlig unplausibel, wenn man von 50-70jährigen spricht.").

The interviews disclosed new and valuable perspectives, for example for the designing of the entrance of the house. Previously it has been anticipated that it would be important for the inhabitants to quickly get into contact with the receptionist. The reception and the staff should be easily visible and addressa-

ble. The opposite direction of the view was not considered: the inhabitants expressed doubts concerning safety, because the reception of the house is placed in such a way that it is not possible to see the entrance of the house from there. So people unauthorised could walk in without being seen. Private spaces should be protected by surveillance at the thresholds, like the entrance and the passage to the private rooms and flats. Thus grades of privacy, like Christoph Alexander et al. (1995, 658ff) describe them, can be created. Especially in seniority, when a higher selectivity of social relations arises (Erber 2010, 231ff). At the same time the facilitation of communication processes should be improved, which means, that spaces are needed that are open and suitable to support encounter. This is a huge challenge. Personal contact and exchange do not work without safety and protection, and the facilitation of the communication processes without personal contact does not work either.

A further result, which contradicts the common belief, applies to semi-public areas in the part of the building where the private rooms and flats are situated. It is common to think that in the areas besides the doors to the private spaces little semi-public areas should be provided, like reading niches and benches to sit down for a chat – all to activate the exchange of the inhabitants among each other. But the elderly wish exactly the opposite: They do not want to be confronted with offers of activation at every turn. They want to decide on their own, if they want to chat or not or to be entertained or not. Therefore, residential areas and entertaining areas should strictly be separated. The separation of private, semi-public and public spaces was very important for the interviewees. The proposed semi-public communication areas and activation niches between private spaces were refused.

## 6.2 Familiar Environment in Homes for the Elderly: Short Distances without Changes

Further results could be gained from the part of the interview about how a perfect home for elderly should be like. Most interviewees said that their home is nice as it is. But when the interview came to the prospective redesign of the house where pictures of possible arrangements were shown they nevertheless expressed some wishes how it should be like. For example, there was the wish to have an own door to the garden so that they do not have to walk through the whole house anymore. Furthermore, the observation of the named favourite places brought to light that these places are nearly out of use.

By digging deeper and by going more into detail the real problem occurred: the elderly are afraid of construction works and the associated noise, dirt and the risk to move from one place to another. For this reason they cope with the situation given as they would like to have improvements but they are afraid of any side effects. With increasing age the scope of activities is getting smaller; it focuses more and more on the nearest environment, such as the own flat or

room in a home for the Elderly. Mobility in everyday life needs increasing support from others (Deinet and Reutlinger 2005, 307). This can be seen as one reason why the inhabitants of the investigated home express both the wish for short distances and their own access to the garden directly from their flats and then again the fear of changes which cause not only noise and dirt but also a move or some loop way.

In conclusion this illustrates that the combination of two central questions, on the one hand that of the favourite places as well as their observation and on the other hand that question of the ideal home made it possible to *uncover a contradiction*. In turn this contradiction shed light on the requirement of a home without any changes. Moreover, the comparison of answers to questions without and with visual stimuli shows that without any stimuli the discussion may not have been that extensive. It would finally not have brought the same findings concerning space perception.

## 6.3 Orientation and Navigation in University Libraries

Due to interviews combined with mental maps, photo documentations and participant observation the characteristic of library spaces as labyrinths were examined. At the beginning of the project I proceeded from the aspect of thinking that a certain level of education and a basic level of socialisation in a library is a sufficient precondition for the successful use of a library. With the project progressing it turned out that library spaces are characterised by social and material closing mechanisms. This seems to be a general concept as I found it in several libraries in different countries. A lack of knowledge of the space of a library results in a highly excluding effect. In order to orientate and navigate in a library and to be able to make a synthesis of space (cf. Löw 2001, 159) it is necessary to be well grounded in knowledge of library spaces. The primary concept of space in some university libraries, e.g. in Constance, Germany, is interrelated with the presentation of all media using a systematic alignment. Several parts of the library stand for several topical parts of the media collection. Within particular buildings parts of the media stock are located on separate floors or rooms, following the systematic and topical position of the media. The systematic positioning of media enables library users to classify the media in a referential framework. "The shelf number of the book, which mirrors its theme, is […] the book's address on the shelves."[9] Decisive for the understanding of a library system are the cultural capital and the library experiences of the users. Otherwise the library is more a labyrinth of floors, shelves and books and even more when it has a confusing ring-like shape as shown above in figure 3, the map of the University of Constance.

[9] University Library of the University of Constance. *Virtual walk around, text version.* <http://www.ub.uni-konstanz.de/index.php?id=272&L=1> (accessed September 6, 2013).

**Figure 4:** Mental Map, 2010

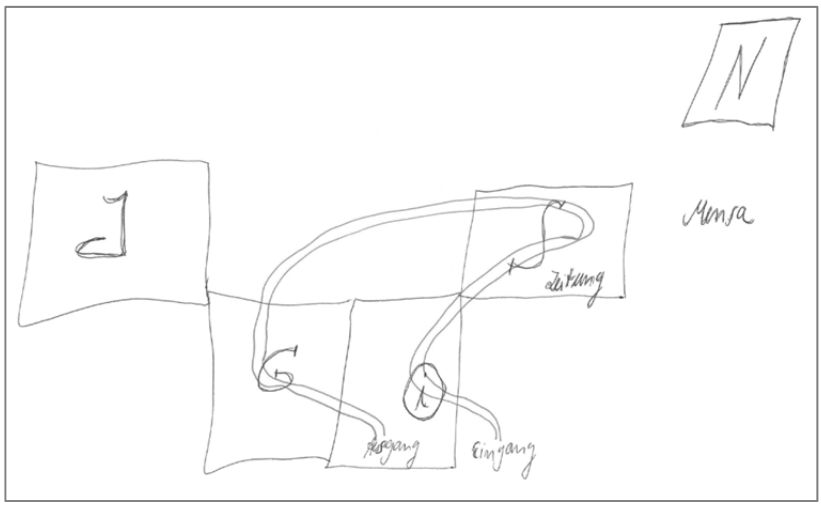
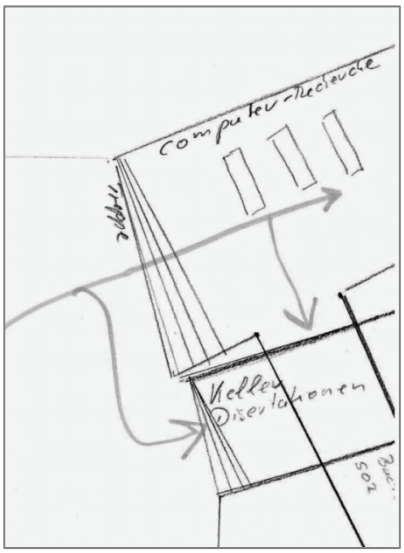


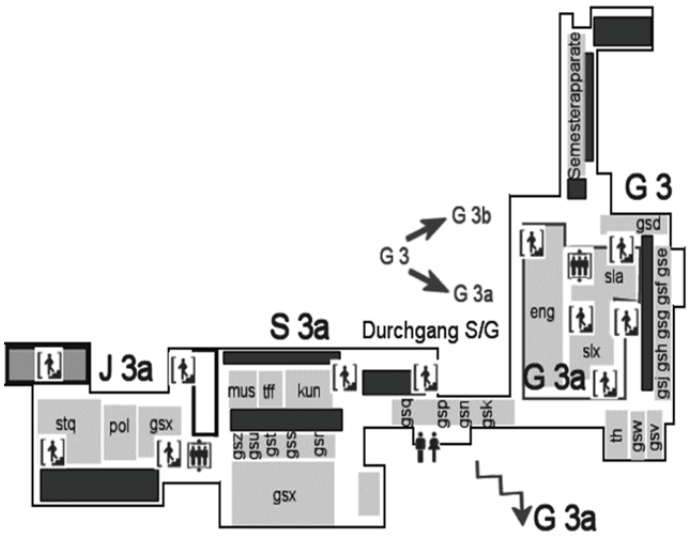

**Figure 5:** Cutout of a Mental Map, 2010




Figures 4 and 5 show mental maps from people who visited the university library of Constance and who were asked to draw such a map afterwards. At the first visit library spaces appear as non-places (Augé 2010), they irritate, puzzle and in some cases they frighten students in such a way that they leave

the library even before finding the book they are looking for. The library has to be acquired step by step in its socio-spatio-material structure. Users have to appropriate the knowledge about in which part of the library building the literature of which disciplines is situated/accommodated. With increasing knowledge the orientation and navigation within the building becomes more effective. But: floor plans can also be confusing and hard to remember. The architecture can display a huge moment of confusion. In the library of the University of Constance the floors are shifted to each other and divided into small sections. In figure 6, which shows the plan of the third floor, this becomes clear.

**Figure 6:** 3rd Floor of the Library, University of Constance




Source: <http://www.ub.uni-konstanz.de/bibliothek/virtueller-rundgang/plaene/ebene-3.html> (accessed February 5, 2011).

The confusion, caused by the material structure of the library is expressed in the following interview, quote:

> For me it is just confusing with all the different floors and then there is this G and S and J and others and then you can leave only from the very floor and enter only on one floor and that was extremely confusing at the beginning

(interview with a bachelor student, Konstanz, 2011).[10] So every part of the data basis – like mental maps, interview quotes, and floor plans – gives another

[10] The interview was conducted and transcribed in German, the original citation is: „Ich find das halt verwirrend mit den verschiedenen Stockwerken und dann gibt's das G und S und J

insight into the perception of space and can be used like a puzzle piece for the analysis of how the users perceive and experience the library spaces. *The triangulation of both, methods and visual and verbal data enabled the interviewees to speak about spaces.*

## 6.4 Appropriation of Library Spaces

Not only knowledge concerning the space is collected by visiting or working in a library, even the space itself is appropriated. To appropriate space means to make space accessible, to understand and modify the social and material environment (Deinet and Reutlinger 2005, 295). So students at the University of Constance move tables and chairs. They bring their own power sockets, group pieces of furniture and thus create their own working space.

A workplace is not just a materio-spatial subsumption; it is socio-spatial as well. The socio-spatial positioning through a workplace includes a positioning in society in the meaning of a belonging. The feeling of belonging and ownership is pointed out in the following quote*:*

> and you feel you can put your stuff on the desk and just be parked there for a period of hours and leave your books there ... even if you got up to leave for few minutes ... ahm (I: mhm) so you can kind of make a little miniature office and feel some sense of ownership (I: OK) over your "space" which is nice" (Interview with a master student, Oxford, 2010).

"*Ownership over your space"* highlights, that it is not just about holding, but about being the owner. Tim Cresswell points this out: "'Would you like to come round to my place?' "This suggests ownership or some kind of connection/relation between a person and a particular location or building. It also suggests a notion of privacy and belonging" (Cresswell 2004, 1). In this sentence the homonymic function of "place" becomes obvious: it may be understood in the meaning of place as well as in the meaning of home.

For university libraries this implies, that a workplace in the library is more a professional workplace like a place of employment, it is like the interviewee says "a little miniature office". It is linked to the special role and special tasks of students and scientists within the scientific community. Even a desk, where someone left his or her books for a break for instance, signals: someone is sitting and working here, someone has his or her place here. This place is more than a normal space, it is an outstanding space: "then I always had my permanent space ahm that I defended if necessary and mmmm (like searching for a term) that then it is at this stage an outstanding space"[11] (interview with a mas-

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und verschiedene und dann kommt man nur aus der Ebene raus und nur in der Ebene rein und das war am Anfang extrem verwirrend."

[11] The interview was conducted and transcribed in German, the original quote is: "dass ich dann immer meinen festen Platz hatte, ähm den ich auch notfalls verteidigt hab, und mmmm (schwebend, nach Begriff suchend) das ist dann schon ein besonderer Platz".

ter student, Constance, 2011). The space is not only a special space, it is to be defended (for the defence of space see also Popitz 2004, 187ff). You have to come early, put your stuff on the table and so on.

## 6.5 Place-Identity as an Approach to Space Perceptions

The both presented projects have shown that the approach to space perceptions via interviews may succeed. Two aspects are therefore essential: the choice of methods which include visual data and the choice of the right interview questions. Addressing favourite places is insightful in some respects: the interviewees do not speak just about places they evaluate as comfy or even cosy and about which characteristics are significant for those favourite places. They furthermore give information concerning their own picture of themselves. *A favourite place is an expression of the own identity.* At the same time memories are bonded to these places like the following quote illustrates:

> in the Upper Reading Room there is a portrait of Joseph Addison who is an English writer in the 18th century who I remember reading his stuff in English class when I was in high school and I remember the day when I was early on and I came in and looked up from my desk and I saw (louder) that's Joseph Addison I recognised the portrait cause I've seen it printed in my textbooks and it was like running in an old friend where you did not expect to see it and (2) I ... I mean I don't ... have much in common with Joseph Addison it's not like I consider myself following in his footsteps really but (3) I guess (3) mm (4) you have as you have (5) you might look at them the way that you would look at your grandparents like your life is very different from theirs you might think a lot of different things from the way they think but that ... they've had a big influence on you and it is because of them that you are even where you are (Interview with a master student, Oxford 2010, numbers in brackets declare length of interval in seconds ).

The favourite place is structured by the process of identity construction and in turn structures the process of identity via narratives (Kaufmann 2004, 95). Brian Graham specifies this as well:

> […] certain artefacts acquire cultural status because they fulfill the need to connect the present to the past in an unbroken trajectory. […] it offers a sequence, allowing us to locate our lives in linear narratives that connect past, present and future (Graham 2002, 1008).

The perception of space is an interplay of the material as well as the social space component. Kalevi Mikael Korpela points this out with the help of a study concerning favourite places of children and teenagers:

> The place itself or the objects in the place can remind one of one's past and offer a concrete background against which one is able to compare oneself at different times […] This creates coherence and continuity in one's self-conceptions (Korpela 1989, 251).

In the example above the spatial experience in its complexity makes a contribution to the process of identity construction by incorporating aspects of the social as well as the material space in the own biography.

People ascribe sense to their own presence in a special space. The same interviewee as quoted above mentioned the following:

> […] were as if you have a friend who is expecting you to be there... then it gives you... some motivation... ahm... and it [...] even when I go to the place the next time on my own... I still fe- feel happier there because it feels like our space... instead of just a place to that I go by myself.

The favourite space develops from "my permanent space" to an "outstanding space", respectively from "a little miniature office" to "our space". Obviously, the "own" space is characterised both materially and socially. The social meaning of that space is linked to the shared experiences.

## 7. Discussion: Advantages and Disadvantages of the Triangulative Research Design

The advantages and disadvantages of the above illustrated methods and approaches to examine space perceptions are obvious: triangulative research designs combining reactive and non-reactive methods as well as verbal and visual data permit to have holistic and detailed insights and they broaden the spectrum of findings (Steinke 2009, 320; Flick 1992, 22). Decisions how the triangulation should be done have to be made during the process of data evaluation. Triangulation of sets of data (Flick 2009, 317)[12] as well as triangulation within several cases (Flick 2009, 316f) – both have their value. As shown in section 6.3 "Orientation and navigation in university libraries" the data material can be triangulated not only within several cases but also within inter-case research aspects, such as the one of orientation and navigation. For this approach, all related data material was brought together: sequences of interviews and the results of their analysis, architectural material (like maps and floor plans), photos and sequences of observation reports. There was no special alignment as known from the successive analysis of the objective hermeneutics. It was more a simultaneous analysis combined with the circular research design that again gave the chance to collect data after a phase of data evaluation.

It should not be underestimated, that triangulative research designs result in a huge amount of data material. These data have to be organised and stored (digital and/or analogue). And the results of data evaluation have to be organised and stored as well. With regard to this I have not found a satisfying solution yet. The huge effort to be made should generally be considered in planning

[12] For triangulation of observation data with other data see Lüders 2009, 384-401.

such projects. The research diary is worth mentioning: it helps to minute ideas, thoughts, findings and activities. Reading these notes helps to reflect the project proceeding (Flick 2007, 532ff; Lüders 2009, 395; Malinowski 1979, 45). Furthermore, peer debriefing (Flick 2007, 495ff) can assist in discussing the data material and to ensure that different perspectives and interpretations have been found, compared and tested.

## 8. Conclusion

In this article I presented two projects with their research designs, approaches and the methods used. It clarifies the impact of the embedding of visual data and non-reactive methods in the exploration of spatial perception. Among other aspects it was possible to retrace not only the confusion of users in some kind of library architecture and with some navigation aid, but also from where this confusion arises. Furthermore, it has been shown with taking the elderly as an example that good interview questions combined with visual stimuli (in my case photographs) can widen the results and even uncover a complexity of space perception so far unknown.

**Figure 7:** Keble College Library Oxford, 2010, own photography

Additionally, the embedding of visual data leads to advantages for the presentation of research results as well. In the two projects a large number of photos, paintings and sketches were made. This visual material can be used within

presentations. It is common knowledge that multi-sensually communicated information may be memorised in a better way. It is certainly retraceable, that some spatial situation may only be explained with a huge effort and narration whereas a picture can illustrate the situation on the fly. A text is linear and enables abstraction. Photographs on the contrary show complex situations in a concrete, holistic and simultaneous manner (Schnettler 2007, 194; Harper 2009, 403). To explain what the Keble College Library in Oxford looks like (figure 7) needs more time and text than a picture does.

Not only for the examination of spaces, but also for the presentation of results concerning space visual and verbal tools complement each other in an excellent way.

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